

CLAIMS

1. A method of transmitting data in a packet radio network to a mobile station (MS) performing a routing area update, the network comprising at least a first support node (SGSN₁) and a second support node (SGSN₂);

5 in which method

the packet radio network sends data (2-0, 2-3a) to the mobile station (MS) via the first support node (SGSN₁);

the mobile station (MS) sends a routing area update message (2-1) to the second support node (SGSN₂), which sends to the first support node (SGSN₁) a request (2-2) for the context data (2-5) of the mobile station from the first support node;

the first support node sends (2-3c, 3-3c, 4-3c) from its memory data addressed to a mobile station to the second support node;

characterized in that

15 a condition is defined, upon the fulfilment of which it is at least probable that the second support node (SGSN₂) has at its disposal the context data of the mobile station; and

when the routing area is being updated, at least one support node (SGSN₁, SGSN₂) delays data transmission until said condition is fulfilled.

20 2. A method as claimed in claim 1, **characterized** in that the first support node (SGSN₁) waits for a predetermined period of time (3-3b, 4-3b) before sending data to the second support node (SGSN₂).

3. A method as claimed in claim 2, **characterized** in that said predetermined period of time (3-3b) is fixed at least for each quality of service.

4. A method as claimed in claim 3, **characterized** in that the predetermined period of time (3-3b) depends on the quality of service of the connection used by the mobile station (MS).

5. A method, ^{as claimed in claim 3} ~~as claimed in any one of claims 3 to 4~~, **characterized** in that said fixed period of time is determined by the second support node (SGSN₂) notifying to the first support node (SGSN₁) the time which substantially corresponds to the time setting of the retransmission timer of the second support node and by one of the support nodes adding a small security margin to this time.

35 6. A method as claimed in claim 1, **characterized** in that

before data transmission to the second support node (SGSN₂), the first support node (SGSN₁) waits for a separate acknowledgement message (4-4') from the second support node, the message indicating that the second support node has received the context data (2-4) of the mobile station.

5 7. A method as claimed in claim 6, **characterized** in that the first support node (SGSN₁) waits for said acknowledgement message (4-4') for a predetermined maximum period of time and resends the context data if it does not receive the acknowledgement message within this time.

10 8. A method as claimed in claim 1, **characterized** in that:
the second support node (SGSN₂), which receives data packets not associated with any PDP context, checks whether a routing area update between support nodes is in progress; and

15 if a routing area update between support nodes is in progress, the second support node (SGSN₂) stores the packets in memory until the routing area update has been terminated, and then sends the packets to the receiver.

20 9. A support node (SGSN₁, SGSN₂) in a packet radio network, the node being arranged to support data transmission in a packet radio network to a mobile station (MS) performing a routing area update; **characterized** in that during a routing area update the support node (SGSN₁, SGSN₂) is arranged to

observe the fulfilment of a condition indicating that the second support node (SGSN₂) is at least likely to have at its disposal the context data of the mobile station; and

delay data transmission until said condition is fulfilled.